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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,234	10/16/2001	Masahiko Kato	FS.F5241US1C	4176

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EXAMINER

MILLER, CARL STUART

ART UNIT PAPER NUMBER

3747

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/053,234	Applicant(s) KATO, MASAHIKO	
	Examiner Carl S. Miller	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/386269.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-10, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenkel in view of Takei.

Jenkel teaches a direct injection injector including a mounting bracket with a thrust and affixing section. The fixing section and the thrust section have convex top and bottom areas.

Takei teaches a direct injection injector with a seal positioned as claimed. The seal is made of a disc spring.

While Jenkel does not disclose a seal between the injector and the combustion chamber one of ordinary skill in the art would have known that such seals are required in order to keep combustion gases from escaping into the atmosphere and thus it would have been obvious to use the sealing means and injector shape of Takei to seal the combustion chamber gases.

Claims 3-4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenkel and Takei as applied to claim 2 above, and further in view of Sato.

Sato (Figure 1) teaches using a recess in the fixing thrust member to locate the thrust bolt of the device. While the recess is not discussed, those of ordinary skill in the art would not disagree concerning the Figure 1 disclosure. Also, Figure 1 shows a

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hollow portion of the cylinder head used to help position the thrust member by holding element (17).

It would have been obvious to position the bolt and thrust member relative to the thrust member and cylinder head, respectively, as taught by Sato because the Sato device is a common cylinder head construction.

Claims 15, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenkel and Takei as applied to claim 9 above, and further in view of Saito ('392).

Saito teaches a direct injection marine engine with crankcase compression and a crank-driven fuel pump.

Became such engines are common in the art and Saito is a direct injection engine, it would have been obvious to use the injector mounting means of Jenkel in the type of engine taught by Saito.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenkel and Takei as applied to claim 9 above, and further in view of Tuipale.

Tuipale teaches a cooling jacket which surrounds a spark plug and the engine has multiple cylinders. Because the engine is an in-line engine, the cooling jackets would be plural and necessarily connected and it would have been obvious to connect them in the vicinity of the spark plugs in order to save space within the structure.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Carl Miller at telephone number 308-2653.

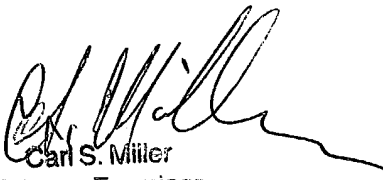
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Miller/DI

June 29, 2004


Carl S. Miller
Primary Examiner